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ABSTRACT

Designed to improve underachieving high school students' reading and communication skills, the Secondary Developmental Reading Program served 741 ninth, tenth, and eleventh graders in 13 Columbus, Ohio, public schools. Funding was made available through the Ohio Disadvantaged Pupil Program Fund (DPPF). Fourteen teachers participated in the 1987-88 program, eight of them using computer-assisted instruction (CAI) to teach 474 students, and six of them serving 267 students with regular program instruction. Diagnostic tests assessed students' individual reading strengths and weaknesses. Data analyzed included pretest and posttest scores, and inservice evaluation forms. Specific objectives of the program were (1) that pupils who attended 80% of the 6.1-month training period would show an average of 1.0 Normal Curve Equivalency (NCE) for each month, and (2) that program personnel would be provided at least two inservice sessions and that at least 80% of the personnel attending each session would rate the session as valuable. The first objective was not attained, while the second objective was exceeded. An extensive list of program recommendations was compiled, including a strong recommendation that the program be restructured during the 1988-89 school year and that a new program be in place for the 1989-90 school year. (Eleven tables of data are included, and evaluation forms are appended.) (SR)

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Ohio Disadvantaged Pupil Program Fund

FINAL EVALUATION REPORT
LANGUAGE DEVELOPMENT COMPONENT
SECONDARY DEVELOPMENTAL READING PROGRAM

July 1988

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Ohio Disadvantaged Pupil Program Fund

FINAL EVALUATION REPORT
LANGUAGE DEVELOPMENT COMPONENT
SECONDARY DEVELOPMENTAL READING
1987-88

ABSTRACT

Program Description: The Secondary Developmental Reading (SDR) Program served 741 pupils in grades 9-11 in 13 senior high schools. Funding of the component was made available through the Ohio Disadvantaged Pupil Program Fund (DPPF).

The purpose of the SDR Program is to assist underachieving high school pupils in raising their reading and communication skills. Emphasis of the program is placed on literacy survival skills necessary to function in our word-oriented world.

Within the 1987-88 SDR Program eight teachers in eight senior high schools participated in a project which utilized Apple computers for computer assisted instruction/computer management system (CAI/CMS). The computer software and attendant services were contracted with the Prescription Learning (PL) Company of Springfield, Illinois. The regular treatment group had six teachers in five senior high schools.

Time Interval: For evaluation purposes, the Secondary Developmental Reading Program started on September 28, 1987 and continued through April 15, 1988. This interval of time gave 122 possible days of program instruction. Pupils included in the final pretest-posttest analysis must have attended at least 98 days (80%) during the time period stated above.

Activities: The program made use of diagnostic testing to assess pupils' individual reading strengths and weaknesses. Individualized instruction to meet pupils' needs was provided on a daily basis in a small group setting.

Program Objectives: The program had two objectives. Objective 1.1 stated that an evaluation sample will be comprised of pupils who score at or below the 36%ile on a selection test and are in attendance at least 80% of the instructional period. Pupils who attend 80% of the 6.1 month treatment period will show an average gain in reading of 1.0 NCE for each month, which is an average gain of 6.1 NCEs overall (6.1 months x 1.0 NCE). Objective 2.1 stated that program personnel will be provided at least two inservice sessions and that at least 80% of the personnel attending each session will rate the session as valuable in providing information that will assist them in carrying out their program responsibilities.

Evaluation Design: Objective 1.1 was evaluated through the administration of the Comprehensive Tests of Basic Skills (CTBS) Reading Comprehension subtest. Analyses of the data included comparison of pretest to posttest change scores in terms of grade equivalents, percentiles, and NCEs. Objective 2.1 was evaluated by means of the General Inservice Evaluation Form, a locally constructed instrument.

Major Findings/Recommendations: The information collected on the Pupil Census Forms indicated the program served 741 pupils for an average of 3.6 hours of instruction per week. The average daily membership in the program was 631.1 pupils. The average days of enrollment per pupil was 103.9 days and the average attendance per pupil was 83.7 days. The average number of pupils served per teacher was 45.1.

Objective 1.1, that pupils who attended 80% of the 6.1 month treatment period would show an average gain in reading of 1.0 NCE for each month, was not attained. There was a negative average change of -5.4 or -0.9 NCE/month.

Objective 2.1, that program personnel would be provided at least two inservice sessions and that at least 80% of the personnel attending each session would rate the session as valuable in providing information to assist them in carrying out their program responsibilities, was attained. The Department of Federal and State Programs provided a total of six inservice meetings. Three of these were available to regular program teachers and four were available to CAI/CMS teachers. All six meetings were favorably rated by more than 80% of the participants, with an average of 97.6% of the participants rating the inservice sessions as valuable in carrying out component responsibilities.

The CAI/CMS project was located in eight high schools. The computer assisted units served 474 pupils. Neither the CAI/CMS project group nor the group receiving regular program instruction attained the achievement criterion. The CAI/CMS group had a negative change of -4.9 NCEs in a 6.1 month period, while the regular group had a negative change of -6.1 NCEs.

The following program recommendations were made: (a) make the program an elective course for pupils with selection test scores below the 36th percentile; (b) schedule time for cooperative planning between program and classroom teachers in order to direct program instruction toward content area of pupil's greatest need; (c) review selection procedures, correlation of course content to system's Course of Study, instructional methods, class size, and test content to determine why pupils are not showing desired growth; (d) school administrators and staff should take the responsibility of assuring an optimum testing environment by not scheduling unsuitable activities during testing weeks and adjusting class schedules to accommodate the length of the tests; (e) keep conditions for the pretest and for the posttest as comparable as possible; (f) conduct a study by giving ninth grade pupils the standard version of the posttest as well as the customized version in order to determine comparability of resultant test scores; and (g) it is strongly recommended that the program be restructured during the 1988-89 school year and that a new program be in place for the 1989-90 school year.

Ohio Disadvantaged Pupil Program Fund

FINAL EVALUATION REPORT
LANGUAGE DEVELOPMENT COMPONENT
SECONDARY DEVELOPMENTAL READING PROGRAM

July 1988

Program Description

The Secondary Developmental Reading (SDR) program began in the Columbus Public Schools in the fall of 1971 as a component of the Ohio Disadvantaged Pupil Program Fund. The 1987-88 version of the SDR program was located in 13 Columbus senior high school buildings. Fourteen project reading teachers worked in these 13 schools with 741 pupils in grades 9-11 who scored at or below the 36th percentile on a standardized achievement test in reading used for selection purposes.

Within the 1987-88 SDR program eight teachers in eight senior high schools participated in a project which utilized Apple microcomputers for computer assisted instruction/computer management system (CAI/CMS). The computer software and attendant services were contracted with the Prescription Learning (PL) Company of Springfield, Illinois. In addition to providing a new technique to reading and language instruction, the use of CAI/CMS was intended to enable teachers to serve more pupils than would be possible in regular SDR classrooms. The use of CAI/CMS was also intended to be a cost-effective alternative to replacing badly worn conventional equipment. Of the 741 pupils in the SDR program, 474 received computer assisted instruction and 267 received regular SDR program instruction.

The purpose of the SDR program was to assist underachieving senior high pupils in raising their reading and communication skills. Emphasis of the program was placed on literacy survival skills necessary to function in our word-oriented world.

Features of the SDR program included the following:

1. Diagnostic testing to assess a pupil's individual reading strengths and weaknesses.
2. Individualized instruction tailored to meet the needs of pupils.
3. Small group instruction.
4. On-going evaluation of pupils to assess their reading needs.
5. Inservice meetings for teachers.

Evaluation Objectives

Objective 1.1 An evaluation sample will be comprised of pupils who score at or below the 36%ile on a selection test and are in attendance at least 80% of the instructional period. The average reading growth of pupils in the evaluation sample of both the regular Secondary Developmental Reading (SDR) project and in the Computer Assisted Instruction/Computer Management System (CAI/CMS) project of SDR will be 1.0 normal curve equivalent (NCE) point for each month of instruction.

The program time period established for evaluation purposes was 122 days beginning September 28, 1987, and ending April 15, 1988. This time period (122 days divided by an average of 20 school days per month) is equal to 6.1 possible months of instruction. Analysis of pretest-posttest performance was contingent on pupil attendance for 98 days (80%) of the 122 day period.

Objective 2.1 To provide at least two inservice sessions to program personnel such that at least 80% of the inservice participants will rate each session as valuable in providing information that will assist them in carrying out their program responsibilities.

Evaluation Design

The evaluation design for the SDR program called for the collection of data in three areas.

1. Pupil Census Information

   The Pupil Census Form was developed for the purpose of collecting pupil demographic and participation data in the Secondary Developmental Reading Program (SDR). Project teachers maintained the Pupil Census Forms for all pupils throughout the school year or when the pupils left the program. Data collected on the Pupil Census Forms were the number of days the pupil was enrolled in the program, the number of days the pupil was in attendance, and the average number of hours per week the project teacher served the pupil. Other information collected included the pupil's grade and sex, identification of non-English speaking pupils, identification of any pupil who left the DPPF program because of qualifying for a special education program, and a question regarding a pupil's progress which required a subjective response from the project teacher. A copy of the Pupil Census Form can be found in the Appendix.

2. Standardized Achievement Test Information

   The purpose of the administration of the standardized achievement test was to collect pretest-posttest achievement data on all SDR program pupils to determine if Objective 1.1 was achieved. The standard achievement test used was the Comprehensive Tests of Basic Skills (CTBS), Reading Comprehension (CTB-McGraw Hill, 1981). The CTBS Reading Comprehension tests were administered on September 21 - September 25, 1987, and again on April 18-22, 1988. The following lists the form, subtest and test levels of the CTBS used for each grade level.

Grade	Subtest	Pretest	Posttest
9	Reading Comprehension	Level J Form U	Level J Form V*
10	Reading Comprehension	Level J Form U	Level J Form V

*Estimated by administration of customized Form V.

At posttest time, grade nine was administered a customized test which included items yielding criterion-referenced scores in addition to a customized form of the norm-referenced test. The customized tests were developed by Columbus Public Schools personnel in cooperation with CTB/McGraw Hill to match the Columbus Public Schools Graded Course of Study.

The achievement tests were administered as follows: Pretests for grades 9-10 were administered by program teachers. Posttests for grade 9 were administered as part of Districtwide Testing. Grade 10 was not covered by Districtwide Testing, so program teachers administered their own posttests to grade 10 pupils. During Districtwide Testing, tests were administered by classroom teachers with program teachers serving as proctors in some classrooms. Pretesting occurred during the week of September 21 - September 25, 1987; posttesting occurred April 18-22, 1988.

3. Inservice Evaluation

The locally developed General Inservice Evaluation Form was designed to obtain teacher perceptions regarding each inservice session. The form was administered to participants at the close of inservice sessions. A modified version of the form was used for the orientation meeting of September 8, 1987, which was attended by both regular SDR and CAI/CMS teachers. There was a total of six inservice meetings - three of which were available to regular SDR teachers and four of which were available to SDR teachers in the CAI/CMS project. The dates and topics of inservice sessions in the 1987-88 school year were as follows:

September 8, 1987	All SDR Teachers Opening Conference
October 1, 1987	SDR-CAI Teachers Prescription Learning Computer Training (a.m.), and the Writing Process (p.m.)
October 27, 1987	SDR-CAI Teachers Increasing Teacher/Student Expectations
November 5, 1987	SDR (Regular Program) Teachers Writing Intervention Strategies, and State Certification
December 3, 1987	SDR (Regular Program) Teachers Connecting Reading and Writing
April 22, 1988	SDR-CAI Teachers Prescription Learning Spring Workshop: Teacher Burnout

Participants completed inservice evaluation forms for all of the above meetings. A copy of the General Inservice Evaluation Form and a copy of the modified version used in the orientation meeting are found in the Appendix.

In addition to the types of data specified in the evaluation design, process evaluation data were obtained by means of a mailed questionnaire sent to CAI/CMS project classrooms in February 1988. Collection was completed in March. The questionnaire was used to obtain descriptive data regarding computer equipment in CAI/CMS labs, and to determine the percent of program time pupils worked at the computer. The full interim report is on file at the Department of Evaluation Services (Chamberlain, 1988).

Major Findings

Due to the fact that the 1987-88 SDR program contained two treatment groups (regular instruction group and CAI/CMS group), data on enrollment/attendance and achievement testing are reported below in two ways. These data are first presented for the overall program regardless of treatment group. The second presentation compares the two treatment groups in regard to enrollment/attendance data and achievement test data.

In interpreting the pretest-posttest achievement data, the reader should be aware of the pupil selection process. Previous norm-referenced reading achievement data and staff recommendations were used to select and enroll pupils for the SDR program. To be eligible for the program the pupil had to score at or below the 36th percentile on the selection test. Once the eligibility list was established, pupils were selected in order of their test scores with the lowest scoring pupils selected first. Following enrollment, pupils were pretested on the CTBS Reading Comprehension subtest, Level J Form U.

Pupil Census Information

During the 1987-88 school year the SDR program served 741 pupils. Of the 741 pupils, 615 (83.0%) were ninth-graders, 125 (16.9%) were tenth-graders, and one pupil (0.1%) was in eleventh grade. Of the 741 pupils, 385 (52.0%) attended the minimum number of days (98) to meet the 80% attendance criterion level contained in Objective 1.1. This was slightly less than last year's figure of 53.2%. A breakdown by grade level showed that 315 (51.2%) of the ninth-graders, and 70 (56.0%) of the tenth-graders met the attendance criterion. The one eleventh-grader did not meet the attendance criterion. The average number of days of enrollment and attendance for program pupils was 103.9 and 83.7 respectively. The overall attendance rate for the program (total days of attendance divided by total days of enrollment) was 80.6%, as compared to 82.4% last year. The average daily membership was 631.1, which was an average of 45.1 pupils per teacher as compared to 47.2 pupils per teacher in last year's program. Table 1 contains the pupil attendance data.

Of the 741 pupils served by the program, teachers rated 292 (39.4%) as making much progress, 259 (35.0%) as making some progress, 116 (15.7%) as making little progress, and 74 (10.0%) as making no progress. This was measured by an item on the Pupil Census Form which required a subjective response from the project teachers regarding their pupils' progress as they exited the SDR program.

The evaluation sample of 324 pupils (43.7% of the pupils served) consisted of those pupils who met three criteria: attended 80% (98) of the 122 program days, received both a pretest and a posttest with the CTBS, and were judged to be English speaking. Of the 324 pupils in the evaluation sample, 262 pupils were in grade 9 and 62 pupils were in grade 10.

Table 1
Number of Pupils Served; Averages for Days of Enrollment, Days of Attendance, Daily Membership and Hours of Instruction Per Week; and Pupils Attending 80% of Days
Reported by Grade Level
1987-88

Grade	Pupils Served	Girls	Boys	Average Days of Enrollment	Average Days of Attendance	Average Daily Membership	Average Hours of Instruction per Pupil per Week	Pupils Attending 80% of Days
9	615	253	362	103.6	83.0	522.2	3.5	315
10	125	58	67	105.5	87.2	108.0	3.6	70
11	1	1	0	98.0	85.0	0.8	3.6	0
Total	741	312	429	103.9	83.7	631.1	3.6	385

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Standardized Achievement Test Information

The analyses of pretest-posttest achievement data provided minimums, maximums, averages or medians, and differences for derived scores by grade level. The derived scores used in the analyses were percentiles, grade equivalents, and normal curve equivalents. No raw score data are presented because pupils took a different form of the test at pretest and posttest times.

Table 2 contains pretest-posttest percentile data. The median percentile for the pretest was 24.0 at grade 9 and 19.0 at grade 10. The median percentile for the posttest was 14.0 at grade 9 and 17.0 at grade 10. These data indicate that neither grade approached a median percentile score of 36 at posttest time. Further analysis of pretest percentile distributions indicated that 73 (27.9%) of the ninth grade pupils in the sample scored above the 36th percentile on the pretest, even though they had previously qualified for the program by scoring below the 36th percentile on a selection test. Of the 62 pupils in the 10th grade evaluation sample, 10 pupils (15.0%) scored above the 36th percentile on the pretest. These 10 pupils represented 3.1% of the overall across-grades evaluation sample. Since the program served mostly ninth grade, the 73 ninth-grade pupils represented 22.5% of the overall evaluation sample of 324 pupils.

Table 3 contains pretest-posttest grade equivalent data. The median grade equivalent score increased from 7.0 to 7.5 at grade 9 and increased from 8.6 to 8.8 at grade 10.

The presentation of achievement data thus far has included results from the analyses of percentiles and grade equivalents. Both percentiles and grade equivalent scores provide comparative information but are not equal units of measure. Caution is advised in drawing conclusions about program impact from any of the scores above. Normal curve equivalents (NCEs) are generally considered to provide the truest indication of pupil growth in achievement, since they provide comparative information in equal units of measurement. Data for NCEs are presented in Table 4.

Objective 1.1 states that the evaluation sample would be composed of pupils who scored below the 36th percentile on the selection test and were in attendance 80% of the program's treatment period. In order to meet the attendance criterion the pupil had to attend at least 98 days of the 6.1 month (122 days) treatment period. To achieve Objective 1.1 the average growth in reading achievement of pupils in the evaluation sample had to be 1.0 NCE for each month of the treatment period, which is an average of 6.1 NCEs for the 6.1 month treatment period.

The overall NCE change for the program was -5.4 or an average of -0.9 NCEs for each of the 6.1 months of the treatment period. This negative change fell considerably short of the expected evaluation criterion of 1.0 NCE gained for every month the pupils were in the program. A negative change of -7.0 NCEs, or -1.1 NCEs per month, occurred in grade 9. In grade 10 there was a positive change of 1.6 NCE points, or 0.3 NCEs per month. The sample size at grade 10 was 62 pupils.

It should be noted that NCE scores are based on percentiles, which compare the pupil's performance in relation to the general population. No change in NCE score would indicate that pupils have progressed at their normal rate of growth over the school year. Even a small gain in percentile or NCE score would indicate that pupils have advanced over the school year at a greater rate than

Table 2
Minimum, Maximum, Median, and Standard Deviation
of the Pretest and Posttest Percentiles
Reported by Grade Level
1987-88

Grade	Number of Pupils	Pretest				Posttest			
		Min.	Max.	Median Percentile	Standard Deviation	Min.	Max.	Median Percentile	Standard Deviation
9	262	5.0	88.0	24.0	16.4	1.0	97.0	14.0	18.5
10	62	1.0	56.0	19.0	14.5	1.0	64.0	17.0	17.7

Table 3
Minimum, Maximum, Median and Standard Deviation
of the Pretest and Posttest Grade Equivalents
Reported by Grade Level
1987-88

Grade	Number of Pupils	Pretest				Posttest			
		Min.	Max.	Median Grade Equivalents	Standard Deviation	Min.	Max.	Median Grade Equivalent	Standard Deviation
9	262	4.2	12.9	7.0	1.8	4.0	12.9	7.5	2.0
10	62	4.2	10.9	8.6	1.7	4.2	12.8	8.8	1.9

Table 4
Minimum, Maximum, Average, and Standard Deviation of the
Pretest and Posttest Normal Curve Equivalents (NCE)
Reported by Grade Level
1987-88

Grade	Number of Pupils	Pretest				Posttest				Average Change
		Min.	Max.	Average NCE	Standard Deviation	Min.	Max.	Average NCE	Standard Deviation	
9	262	15.0	75.0	35.4	11.8	1.0	89.0	28.4	15.4	-7.0
10	62	1.0	53.0	30.4	12.6	1.0	58.0	32.1	13.7	1.6
Total	324			34.4				29.1		-5.4

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Table 5
Change Categories for NCE Scores
for Total SDR program
1987-88

	Pupils in Sample	No Improvement (0.0 or less)	Some Improvement (0.1 to 6.9)	Substantial Improvement (7.0 or more)
Grade 9				
Number of Pupils	262	190	36	36
% of Pupils		72.5%	13.7%	13.7%
Grade 10				
Number of Pupils	62	27	8	27
% of Pupils		43.5%	12.9%	43.5%
Totals				
Number of Pupils	324	217	44	63
% of Pupils		67.0%	13.6%	19.4%

would be expected from their original position in relation to the general population. Table 5 contains data related to the changes in NCE scores for three ranges: (a) no improvement in NCE scores (0.0 or less), (b) some improvement in NCE scores (0.1 to 6.9), and (c) substantial improvement in NCE scores (7.0 or more). The data indicate that 107 (33.0%) pupils made gains in NCE scores. This means that 33.0% of the pupils in the evaluation sample progressed at a rate that was greater than normal for them. More specifically, 63 (19.4%) made significant improvement and 44 (13.6%) made some improvement in NCE scores, while 217 pupils (67.0%) of the evaluation sample made no improvement, as evidenced by a gain of 0.0 or decrease in NCE score. In regard to grade level, 35 of 62 (56.5%) tenth grade pupils showed progress, while 72 of 262 (27.5%) of ninth grade pupils showed positive progress.

Tables 6-10 present comparisons between the group of pupils receiving computer assisted instruction/computer management system (CAI/CMS) in reading and the group receiving the regular program instruction. As indicated in Table 6, there were 474 pupils served by the CAI/CMS project and 267 pupils who received regular reading instruction. The regular group averaged 5.5 more days of attendance per pupil with an overall average of 87.2 days as compared to 81.7 days for the CAI/CMS group. The average number of days attended was greater for grade 10 than for grade 9 in both groups. In the CAI/CMS group 241 of the 474 pupils served (50.8%) met the program attendance criterion by attending at least 98 days. In the regular treatment group the attendance criterion was met by 144 (53.9%) of the 267 pupils served. The evaluation sample of 324 pupils was comprised of 208 pupils in the CAI/CMS group and 116 pupils in the regular group. Achievement data for the two subpopulations of the program are presented in Tables 7-10.

Percentile score comparisons are presented in Table 7. In grade 9 the median percentile score regressed from 31.0 to 16.0 in the CAI/CMS group and from 21.0 to 11.0 in the regular treatment group. At grade 10 the median percentile progressed from 19.0 to 23.0 in the CAI/CMS group but regressed from 22.0 to 13.5 in the regular treatment group.

Table 8 presents comparisons in terms of median grade equivalent scores. Changes in grade equivalent scores were small, especially in grade 9. The median grade equivalent score decreased from 8.0 to 7.9 in grade 9 of the CAI/CMS group and increased from 6.5 to 6.7 in grade 9 of the regular group. The median grade equivalent score increased from 8.6 to 9.1 in the CAI/CMS group but decreased from 8.8 to 8.5 in the regular group. In grade 10 the overall sample was smaller (62 pupils, 19.1%), while grade 9 comprised the bulk of the pupils (262 pupils, 80.9%).

As indicated earlier, NCE scores are generally considered to provide the most comparative information in equal units of measurement. Data for the two groups in terms of NCE scores are presented in Table 9. The data indicate that the average NCE change within the CAI/CMS group was -7.0 NCE points in grade 9, with 160 pupils in the sample, and 2.0 NCE points in grade 10, with 48 pupils in the sample. In the regular treatment group the 102 pupils in grade 9 had an average change of -7.0 NCE points, and the sample of 14 pupils in grade 10 had an average gain of 0.4 NCE point. Neither SDR group met the criterion of Objective 1.1 with a change of 6.1 NCE points, or 1.0 NCE points for each month of instruction. An overall comparison of the two treatment groups is obtained by examining the average NCE changes across grade levels. The average change for the CAI/CMS group was -4.9 NCE points over the 6.1 month treatment period. The regular treatment group regressed even more with an average change of -6.1 NCE points in the same 6.1 month treatment period.

Table 6
Number of Pupils Served, Averages for Days of Enrollment, Days of Attendance, Daily Membership and Hours of Instruction Per Week, and Pupils Attending 80% of Days Reported by Grade Level for Pupils Receiving Reading Instruction with Computers (CAI/CMS Group) and Pupils Receiving Reading Instruction without Computers (Regular Group) 1987-88

Grade	Pupils Served	Girls	Boys	Average Days of Enrollment	Average Days of Attendance	Average Daily Membership	Average Hrs. of Inst. Per Pupil Per Week	Pupils Attending 80% of Days
CAI/CMS Group								
9	382	158	224	100.2	80.7	313.7	3.5	190
10	91	37	54	103.3	86.3	77.0	3.6	51
11	1	1	0	98.0	85.0	0.8	3.6	0
Total	474	196	278	100.8	81.7	391.5	3.6	241
Regular Group								
9	233	95	138	109.2	86.8	208.5	3.5	125
10	34	21	13	111.2	89.6	31.0	3.6	19
Total	267	116	151	109.4	87.2	239.5	3.5	144

Table 7
Minimum, Maximum, Median, and Standard Deviation
of the Pretest and Posttest Percentiles Reported by Grade Level
for Pupils Receiving Reading Instruction with Computers (CAI/CMS Group)
and Pupils Receiving Reading Instruction without Computers (Regular Group)
1987-88

Grade	Number of Pupils	Pretest				Posttest			
		Min.	Max.	Median Percentile	Standard Deviation	Min.	Max.	Median Percentile	Standard Deviation
CAI/CMS Group									
9	160	5.0	88.0	31.0	17.1	1.0	97.0	16.0	19.6
10	48	1.0	56.0	19.0	15.0	1.0	64.0	23.0	18.1
Regular Group									
9	102	5.0	56.0	21.0	14.6	1.0	86.0	11.0	16.4
10	14	1.0	44.0	22.0	13.1	3.0	56.0	13.5	15.3

Table 8
Minimum, Maximum, Median, and Standard Deviation
of the Pretest and Posttest Grade Equivalents Reported by Grade Level
for Pupils Receiving Reading Instruction with Computers (CAI/CMS Group)
and Pupils Receiving Reading Instruction without Computers (Regular Group)
1987-88

		Pretest				Posttest			
Grade	Number of Pupils	Min.	Max.	Median Grade Equivalents	Standard Deviation	Min.	Max.	Median Grade Equivalent	Standard Deviation
CAI/CMS Group									
9	160	4.2	12.9	8.0	1.8	4.0	12.9	7.9	2.1
10	48	4.2	10.9	8.6	1.6	4.2	12.8	9.1	1.9
Regular Group									
9	102	4.2	9.4	6.5	1.6	4.0	12.9	6.7	1.9
10	14	4.2	9.7	8.8	1.9	5.4	12.1	8.5	1.8

Table 9
Minimum, Maximum, Average, and Standard Deviation of the
Pretest and Posttest Normal Curve Equivalents (NCE) Reported by Grade Level
for Pupils Receiving Reading Instruction with Computers (CAI/CMS Group)
and Pupils Receiving Reading Instruction without Computers (Regular Group)
1987-88

Grade	Number of Pupils	Pretest				Posttest				Average Change
		Min.	Max.	Average NCE	Standard Deviation	Min.	Max.	Average NCE	Standard Deviation	
CAI/CMS Group										
9	160	15.0	75.0	37.1	12.0	1.0	89.0	30.0	15.7	-7.0
10	48	1.0	53.0	31.1	12.1	1.0	58.0	33.1	14.0	2.0
Total	208			35.7				30.8		-4.9
Regular Group										
9	102	15.0	53.0	32.8	11.1	1.0	73.0	25.8	14.7	-7.0
10	14	1.0	46.0	28.0	14.4	11.0	53.0	28.4	12.1	0.4
Total	116			32.2				26.1		-6.1

Table 10
Change Categories for NCE Scores for Total SDR Program Reported by Grade Level for Pupils Receiving Reading Instruction with Computers (CAI/CMS Group) and Pupils Receiving Reading Instruction without Computers (Regular Group)
1987-88

	Pupils in Sample	No Improvement (0.0 or less)	Some Improvement (0.1 to 6.9)	Substantial Improvement (7.0 or more)
CAI/CMS Group				
Grade 9				
Number of Pupils	160	116	24	20
% of Pupils		72.5%	15.0%	12.5%
Grade 10				
Number of Pupils	48	21	6	21
% of Pupils		43.8%	12.5%	43.8%
Total				
Number of Pupils	208	137	30	41
% of Pupils		65.9%	14.4%	19.7%
Regular Group				
Grade 9				
Number of Pupils	102	74	12	16
% of Pupils		72.5%	11.8%	15.7%
Grade 10				
Number of Pupils	14	6	2	6
% of Pupils		42.9%	14.3%	42.9%
Total				
Number of Pupils	116	80	14	22
% of Pupils		69.0%	12.1%	19.0%

EVALSRVCS/P510/RPTFSDR88
07/11/88

Table 10 compares the CAI/CMS and regular groups in regard to numbers and percents of pupils who evidenced no improvement, some improvement, and substantial improvement, as previously defined. The data indicate that 71 pupils (34.1%) of the CAI/CMS group pupils made positive gains in NCE scores, while 36 pupils (31.0%) of the regular group did so. Positive gains in the CAI/CMS group included 41 pupils (19.7%) who made substantial improvement and 30 pupils (14.4%) who made some improvement. Positive gains in the regular group included 22 pupils (19.0%) making substantial improvement, and 14 pupils (12.1%) making some improvement.

Inservice Evaluation Information

Objective 2.1 stated that program personnel would be provided at least two inservice sessions and that at least 80% of the personnel attending each session would rate the session as valuable in providing information that would assist them in carrying out their program responsibilities. A total of six inservice meetings was provided by the Department of Federal and State Programs. All SDR teachers were given the opportunity to attend the opening conference of September 8, 1987. A modified version of the General Inservice Evaluation Form was used for the opening conference while the other five inservice meetings were assessed using the regular General Inservice Evaluation Form. Copies of these two instruments are in the Appendix.

The 80% criterion was attained in all six inservice meetings with 87.5% of the participants in the first meeting, and 100.0% in the five subsequent meetings, either agreeing or strongly agreeing that the meetings were valuable in assisting them in their programs.

Table 11 contains a summary of the combined teacher ratings for all of the inservice programs. In this combined rating, 97.6% of the participants agreed or strongly agreed that the information in the meetings would assist them in their program. Ratings were based on the following five-point scale:

1 = Strongly Disagree
2 = Disagree
3 = Undecided
4 = Agree
5 = Strongly Agree

Table 11
Average Response and Percent of Response
For Reactions to Inservice Statements

Statements	Number Responding	Average Response	Percent SA (5)	A (4)	U (3)	D (2)	SD (1)
1. I think this was a very worthwhile meeting.	41	4.8	78.0	19.5	2.4	0.0	0.0
2. The information presented in the meeting will assist me in my program.	41	4.7	70.7	26.8	0.0	2.4	0.0
3. There was time to ask questions pertaining to the presentation.	40	4.4	60.0	30.0	2.5	7.5	0.0
4. Questions were answered adequately.	41	4.6	68.3	24.4	7.3	0.0	0.0

Open-ended comments on the General Inservice Evaluation Form asked participants to comment about the most and least valuable parts of the meetings and about information they would like to have covered in future meetings. Only those open-ended comments which were made by three or more participants at any single session will be summarized here. However, the evaluation reports on individual sessions have been forwarded to the Department of State and Federal Programs and are available on request.

In regard to the most valuable parts of the inservice meetings, teachers liked the exhibits and materials session of the orientation meeting. Dr. Mello's presentation on October 27 was popular with the CAI/CMS teachers, and regular program teachers considered "everything" as most valuable at the November 5 meeting on writing intervention strategies and state certification. For the question dealing with the least valuable part, the main speaker's choice of topic at the orientation meeting was considered inappropriate. In the October 1 meeting on Prescription Learning computer training and the writing process, "nothing" was considered least valuable. There were two suggestions for future meetings: concerns about program testing and time to share ideas with each other.

It is concluded that Objective 2.1 was attained. There was a total of six inservice meetings, three of which were available to regular program teachers and four of which were available to CAI/CMS teachers. This surpasses the minimum of two meetings stated in the objective. Each of these meetings was rated as valuable in carrying out component responsibilities by more than the requisite 80% of the participants.

Process Evaluation Information

In addition to the types of data specified in the evaluation design, process evaluation data were obtained by means of a mailed questionnaire sent to all CAI/CMS project classrooms in February 1988. Collection of the instrument was completed in March. The instrument had two purposes: to obtain descriptive data regarding computer equipment in CAI/CMS labs, and to determine the percent of program time pupils worked at the computers. All eight CAI/CMS labs in the SDR program were serviced by Prescription Learning (PL). High school PL labs consisted of nine Apple microcomputers used as pupil stations, plus a tenth Apple which was used as the in-lab management system and for pupil hands-on testing. Data from the survey indicated that the average percent of program time a pupil worked at a computer in this project was 49.3%.

Although further process evaluation was not conducted on a formal basis, several teachers from both the regular and CAI/CMS groups made informal comments to evaluators during inservice meetings or in the course of phone calls. Teachers were appreciative of the increased opportunity to attend inservice meetings and of the program coordinator's newsletter that was started during the year. Teachers indicated continuing concern over certain aspects of some testing situations: inappropriate scheduling of activities during test week, inconsistent application of testing guidelines, lack of suitable space for testing, and the cavalier attitude of some proctors.

Summary

The Secondary Developmental Reading Program is an individualized learning program designed to assist secondary pupils who are having reading problems. During the 1987-88 school year, 14 project teachers working in 13 senior high schools served a total of 741 pupils in grades 9-11.

The program had two objectives. Objective 1.1 stated that pupils who attended 80% of the 6.1 month treatment period would show an average gain in reading of 1.0 NCE for each month, which is an average gain of 6.1 NCEs overall (6.1 months x 1.0 NCE). This objective was not attained. The program showed an overall negative change of -5.4 NCE points for the 6.1 month treatment period, or -0.9 NCEs per month. In grade 10, the NCE gain was 1.6 NCE for the treatment period, or 0.3 NCE per month. The negative change in grade 9 was -7.0 NCEs for the treatment period, or -1.1 NCEs per month.

Teacher perceptions of pupil progress, as measured by an item on the Pupil Census Form, suggested that they felt there was more pupil progress than test scores indicated. Of the 741 pupils served by the program, teachers rated 292 (39.4%) as making much progress, 259 (35.0%) as making some progress, 116 (15.7%) as making little progress, and 74 (10.0%) as making no progress.

Objective 2.1 stated that program personnel would be provided at least two inservice meetings and that at least 80% of the personnel attending each meeting would rate the meeting as valuable in providing information that would assist them in carrying out their program responsibilities. There was a total of six inservice meetings provided by the Department of Federal and State Programs. Three of these were available to regular program teachers, and four were available to CAI/CMS teachers. All six meetings were rated as valuable in carrying out program responsibilities by more than the requisite 80% of participants. Objective 2.1 was attained.

The CAI/CMS project was located in eight high schools. The computer assisted units served 474 pupils, while 267 pupils were served in the Regular group. Neither the CAI/CMS project group nor the group receiving regular program instruction attained the achievement criterion. The CAI/CMS group had a negative change of -4.9 NCEs in a 6.1 month period, while the Regular group had a negative change of -6.1 NCEs.

Process evaluation indicated that all eight labs in the CAI/CMS project were serviced by Prescription Learning (PL). Each lab was equipped with 10 Apple microcomputers, one of which served as the in-lab management system and the hands-on testing station. On the average, project pupils worked 49.3% of program time at a computer.

Although further process evaluation was not conducted on a formal basis some of the informal comments by regular program and CAI/CMS teachers were notable. Unsolicited comments by teachers during the year indicated appreciation for the increased opportunity to attend inservice meetings. Some teachers also perceived certain inadequacies in the testing process at some locations: activities scheduled during test week, lack of adherence to testing guidelines, problems of space, and inappropriate attitudes of some proctors.

During the 1987-88 school year, the Secondary Developmental Reading Program experienced problems in several areas.

1. Pupil achievement: In terms of NCE scores, 67.0% of the pupils in the sample showed no improvement; 13.6% showed some improvement but did not attain the achievement criterion of 1.0 NCE per month; and 19.4% met the achievement criterion.

2. Pupil attendance: The average pupil was enrolled in the program 103.9 days but attended only 83.7 days. The overall attendance rate (total days of attendance divided by total days of enrollment) was 80.6%, which averages out to an absence rate of 0.97 day per week. Part of

the problem appears to be that the average pupil was not enrolled in the program long enough to expect meeting the requisite number of days of attendance (98 days) to attain the attendance criterion.

3. Testing Concerns: Informal comments made by teachers to program evaluators during the school year indicated continuing concern over certain aspects of some testing situations: inappropriate scheduling of activities during test week, inconsistent application of testing guidelines, insufficient space for testing, and the cavalier attitude of some proctors.

Recommendations

Since the Secondary Developmental Reading Program is to be continued for the 1988-89 school year, consideration should be given to the following:

1. The program should become an elective course for those pupils who scored at or below the 36th percentile on a selection test. All eligible pupils should be approached and made aware of the program opportunity. Pupils would receive one-half credit for the year contingent on their fulfillment of a signed contract to attend 80% of the program days, and upon the program teacher's judgment of pupil effort.

2. Coordination of program instruction with classroom instruction should be facilitated by time for communication between program and classroom teachers at regularly scheduled meeting times. Program instruction should be directed toward success in the content area where the pupil needs the most help.

3. Review selection procedures, correlation of course content to system's Course of Study, instructional methods, class size, and test content to determine why pupils are not showing desired growth.

4. School administrators and staff should take the responsibility of assuring an optimum testing environment by not scheduling unsuitable activities during testing weeks and by adjusting class schedules to accommodate the length of the tests.

5. Conditions for the pretest and for the posttest should be as comparable as possible with all examiners trained to give the tests per instructions in the Examiners' Manuals. Pupils should not be tested in groups larger than recommended by the testing company.

6. A study should be made to assess the comparability between the standard and customized versions of the ninth grade test. The study could be conducted as part of Districtwide Testing, using a representative sample of the district's ninth grade population.

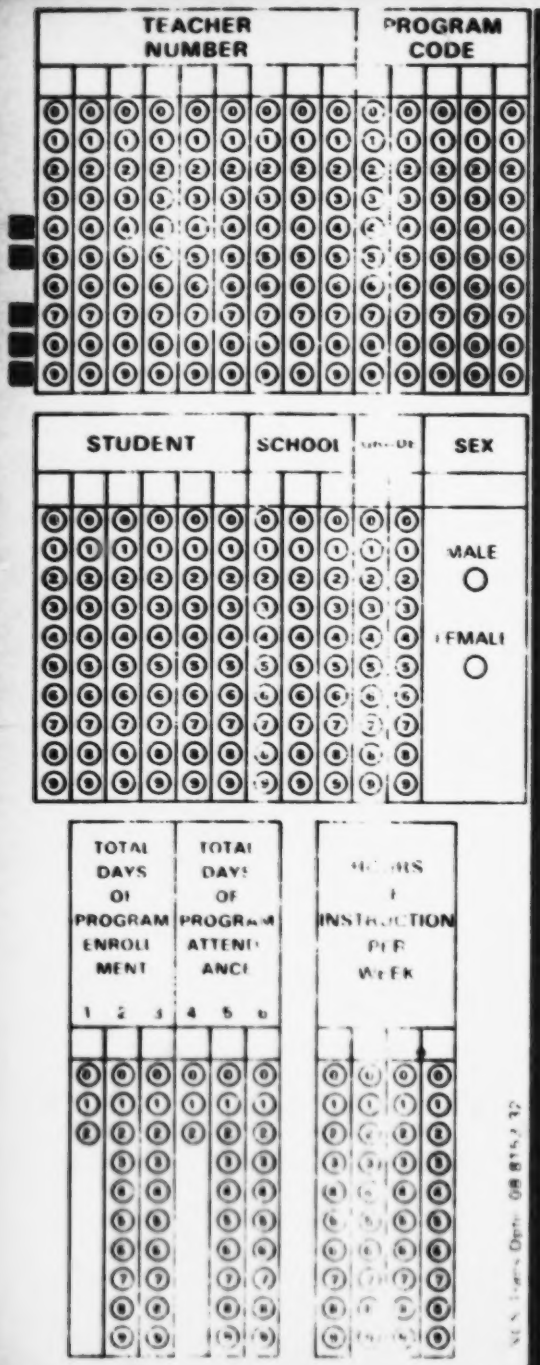
7. For the past 7 years, the SDR program has not approached the specified reading achievement results set for the program. During these years the final evaluation reports have recommended a thorough review of many aspects of the program. In addition, the report of the Compensatory Education Programs Study Committee recommended that the current program should be suspended and restructured with consideration given to providing the program at tenth grade as a reading/writing lab. During the 1987-88 school year program teachers were brought in to an all-day meeting to discuss ways to improve the program. In light of these factors, it is strongly recommended that the program be restructured during the 1988-89 school year and that a new program be in place for the 1989-90 school year. This program should reflect the many recommendations made for the program by many people and should address minimum state standards and DPPF program guidelines.

References

CTB/McGraw-Hill Staffwriters (1981). Comprehensive Tests of Basic Skills. Monterey, California: CTB/McGraw-Hill.

Chamberlain, E. (1988). Distribution of different computer systems in Chapter 1 and DPPF program labs using computer assisted instruction. Interim Evaluation Report. Columbus, Ohio: Columbus Public Schools, Department of Evaluation Services.

Appendix



COLUMBUS PUBLIC SCHOOLS - Columbus, Ohio PUPIL CENSUS FORM

LAST NAME | FIRST NAME | M. I | SEX | TEACHER NUMBER

SCHOOL | H R | GRADE

USE A NUMBER 2 PENCIL. ERASE COMPLETELY WHEN MAKING CORRECTIONS.

WAS THIS A "NON-ENGLISH SPEAKING" STUDENT?

YES NO

DID THIS PUPIL BECOME QUALIFIED FOR A SPECIAL ED. PROGRAM?

YES NO

HOW DID YOU FEEL THIS PUPIL PROGRESSED WHILE IN YOUR PROGRAM?

MUCH PROGRESS SOME PROGRESS LITTLE PROGRESS NO PROGRESS

ECIA CHAPTER 1
ORIENTATION INSERVICE EVALUATION FORM
September 8, 1987

Circle only the program you are in:

ECIA Chapter 1 Programs:
(1) ADK
(2) CLEAR-Elementary (1-5)
(3) CLEAR-Elementary-CAI (4-5)
(4) CLEAR-Middle School (6-8)
(5) CLEAR-Middle-CAI (6-8)
(6) MIC-Elementary-CAI
(7) Pilot Math Program-Middle School

DPPF Programs:
(6) SDR (9-10)
(7) SDR-CAI (9-10)
(8) HSCA
Other (Specify)_____

Circle the number that indicates the extent to which you agree with statements 1-4, in rating the overall day of inservice.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I think this was a very worthwhile inservice.	5	4	3	2	1
2. The information presented in this inservice will assist me in my program.	5	4	3	2	1
3. There was time to ask questions pertaining to the presentations.	5	4	3	2	1
4. Questions were answered adequately.	5	4	3	2	1

Circle the number that indicates how you would rate each of the following portions of today's inservice in regard to interest and usefulness of presentations.

	Superior	Excellent	Good	Fair	Poor
5. Large Group Session					
a. Interest	5	4	3	2	1
b. Usefulness	5	4	3	2	1
6. Commercial Exhibits					
a. Interest	5	4	3	2	1
b. Usefulness	5	4	3	2	1
7. Mini-session with main speaker					
a. Interest	5	4	3	2	1
b. Usefulness	5	4	3	2	1

	Superior	Excellent	Good	Fair	Poor
8. Chapter 1 mini-session					
a. Interest	5	4	3	2	1
b. Usefulness	5	4	3	2	1
c. Clarity of instructions	5	4	3	2	1
9. Evaluation Presentation					
a. Interest	5	4	3	2	1
b. Usefulness	5	4	3	2	1
c. Clarity of instructions	5	4	3	2	1

10. What was the most valuable part of this meeting?_____

_____

11. What was the least valuable part of this meeting?_____

_____

12. What additional information or topics would you like to see covered in future meetings?

_____

_____

_____

GENERAL INSERVICE EVALUATION FORM

Inservice Topic:_____

Presenter(s):_____

Date: _____ (e.g., 03/05/88)

Session: _____a.m. and/or _____p.m.

Circle only the program you are in:

ECIA Chapter 1 Programs:
(1) ADK
(2) CLEAR-Reading Recovery
(3) CLEAR-Primary (Special Treatment)
(4) CLEAR-Elementary (1-5)
(5) CLEAR-Elementary-CAI
(6) CLEAR-Middle (6-8)
(7) CLEAR-Middle-CAI
(8) MIC-Elementary-CAI
(9) Math-Middle-Pilot
(10) MIC-Middle-CAI
Other (Specify)_____

DPPF Programs:
(11) SDR (9-10)
(12) SDR-CAI
(13) HSCA

Circle the number that indicates the extent to which you agree with statements 1-4.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I think this was a very worthwhile meeting.	5	4	3	2	1
2. The information presented in this meeting will assist me in my program.	5	4	3	2	1
3. There was time to ask questions pertaining to the presentation.	5	4	3	2	1
4. Questions were answered adequately.	5	4	3	2	1

5. What was the most valuable part of this meeting?_____

_____

6. What was the least valuable part of this meeting?_____

_____

7. What additional information or topics would you like to see covered in future meetings?_____

_____

_____

1987-88
Teacher Census Form

Social Security Number ___ ___ ___-___ ___-___ ___ ___ ___

Name_____ Program Code_____

School Assignment_____ Cost Center _____

Circle only the program you are in:

ECIA Chapter 1 Programs:
(1) ADK
(2) CLEAR-Elementary (1-5)
(3) CLEAR-Elementary-CAI (4-5)
(4) CLEAR-Middle School (6-8)
(5) CLEAR-Middle-CAI (6-8)
(6) MIC-Elementary-CAI
(7) Pilot Math Program-Middle School

DPPF Programs:
(6) SDR (9-10)
(7) SDR-CAI (9-10)
(8) HSCA
Other (Specify)_____

[a]Number of Years of Teaching Experience_____

[b]Number of Years of Title I/Chapter 1 Teaching Experience_____

[c]I am certified in reading as indicated by the subject area on my teaching certificate.

_____Yes _____No

Highest College Degree Received_____

Full-Time Employee_____
or
Part-Time Employee_____

---

[a]Total all years of experience, including those which may have occurred outside of the City of Columbus. Please include present school year.

[b]1. For every full year taught in Title I/Chapter 1 give yourself 10 months experience. Please include the present school year.

2. For every summer term you taught in Title I give yourself two months experience.

3. Add in any miscellaneous experience, a part-year perhaps.

4. Add the totals for 1, 2, and 3 and divide by 10. Place the resulting quotient in the blank for question b above.

[c]Certification is defined as having one of the following:

1. reading specified on Bachelor degree.

2. reading specialist certificate.

3. M.A. in reading as a subject.

MEMO

TO: CLEAR, MIC, and SDR Teachers Using Computer-Assisted Instruction (CAI)

FROM: Ed Chamberlain (CLEAR-CAI and SDR-CAI evaluations)
Phyl Thomas (Mathematics program evaluations)

SUBJECT: Computer Systems Used in CAI Classrooms

DATE: February 12, 1988

Since there is a variety of different computer systems used in program classrooms, it becomes necessary for us to take a sort of census from time to time to determine the distribution of these computer systems. Please take a few minutes to complete the form below, fold and staple with the return mailing label showing, and return it in the school mail.

Teacher _____ School _____

Number of Computers or Terminals, by Type

___Apple
___TRS-80
___Microhost
___Sperry
___Dolphin
___PET
___Other _____

Company Servicing Computers (please check)

___Prescription Learning
___B&B
___CCC
___Wasatch
___Houghton-Mifflin
___None
___Other _____

Does your computer system include a command module/teacher management system? _____

How many computers (or terminals) are available for student work, not counting the Command Module? _____

Average number of minutes per week a pupil is served in the program

_____ (Reading program pupils) _____ (Math program pupils)

Average number of minutes per week a pupil works at a computer

_____ (Reading program pupil) _____ (Math program pupil)

Space for optional comments:

cc: Dick Amorose
Sharon Bermel
Rose Carbol
John Hilliard
Pat Huggard
Dick Snide
Dorothy Wilson